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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,591

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Toshihiko Zenpo

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EXAMINER

MALEKZADEH, SEYED MASOUD

ART UNIT

PAPER NUMBER

1791

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,591	<b>Applicant(s)</b> ZENPO ET AL.	
	<b>Examiner</b> SEYED M. MALEKZADEH	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Response to Amendment***

Claims 1-11 are pending.

In view of amendment, filed on December 17, 2007 following rejections / objections are withdrawn from the previous office action, mailed on 09/24/2007, for the reason of record.

- Objection of specification
- Rejection of claims 1-11 under 35 U.S.C. 102(b) as being anticipated by Koichi et al. (JP 56004342)
- Rejection of claims 1-11 under 35 U.S.C. 102 (b) as being anticipated by Makiguchi (JP 2000-190049)

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Frederick et al. (US 3,813,201)

Frederick et al. ('201) teach a mold apparatus for forming an article having a complex shape in which the mold apparatus include a top mold member 4, a bottom mold member 6, a molding cavity 8 generally defining the desired shape of the article to be formed, and a venting means for venting chamber (8) to the outside atmosphere around conventional molding apparatus. Furthermore, prior art teaches the molding material cast is a polyurethane foam and the mold is made of the metal. (See lines 22-29 and 32-44, column 3; lines 31-43, column 5)

With regard to the citations in claim 11, lines 1-2 “used for the apparatus according to claim 2”, and lines 3-5 “wherein the metal mold is used for making a mold by injecting a foam mixture made by mixing the particles of aggregate, more than one kind of water-soluble binder, and water, into the metal mold.”

Intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder*, 168 USPQ 530.

The manner or method in which a machine is to be utilized is not germane to the issue of patentability of the machine itself, *In re Casey*, 152 USPQ 235,238.

Purpose to which apparatus is to be put and expression relating apparatus to contents thereof during intended operation are not significant in

Art Unit: 1791

determining patentability of an apparatus claim, *Ex parte Thibault*, 164 USPQ 666.

A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, *EX parte Masham*, 2 USPQ2d 1647.

Takuji et al ('333) disclose all the structural features defined in the claimed die assembly of the instant application.

The prior art, thus, meets all the claim limitations, and therefore, Frederick et al. ('201) anticipates claim 11.

Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Gould (US 4,028,450).

Gould ('450) teach a mold apparatus to form a form molded synthetic roofing section having a relatively broad surface in which the mold apparatus include a metallic mold (31), a mold surface (32), a pressure plate (34), a base member (1) which is fitted onto the stepped section (35) of the cavity of mold (31) on top of barrier coat (33), and a vent hole (71) configured in vent screw (70) to vent trapped air. (See lines 27-40, column 4, and lines 30-46, column 5) Furthermore, Gould ('450) discloses the molding material is a liquid synthetic foam such as a foamable thermosetting resin reaction mixture. (See lines 27-40, column 4

With regard to the citations in claim 11, lines 1-2 “used for the apparatus according to claim 2”, and lines 3-5 “wherein the metal mold is used for making a mold by injecting a foam mixture made by mixing the particles of aggregate, more than one kind of water-soluble binder, and water, into the metal mold.”, intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder*, 168 USPQ 530.

The manner or method in which a machine is to be utilized is not germane to the issue of patentability of the machine itself, *In re Casey*, 152 USPQ 235,238.

Purpose to which apparatus is to be put and expression relating apparatus to contents thereof during intended operation are not significant in determining patentability of an apparatus claim, *Ex parte Thibault*, 164 USPQ 666.

A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, *EX parte Masham*, 2 USPQ2d 1647.

The prior art, thus, meets all the claim limitations, and therefore, Gould ('450) anticipates claim 11.

***Claim Rejections - 35 USC § 103***

Art Unit: 1791

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers et al. (US 3,599,282) in view of Kresak (US 5,354,194)

Meyers et al. ('282) disclose a molding apparatus having a mold support with molds positioned thereon and means above the molds to permit a mixing head to move above the molds and having flexible connections to the foamable ingredient's supply system wherein the apparatus further comprises a pouring or mixing head (5) as a hollow cylindrical body which includes a hole as an injection hole at the bottom of mixing head (5) to supply molds (17) with the foamable ingredient's supply system, a solenoid valve mechanism (20) associated assembled below the pouring head (5) as a mean for closing and

Art Unit: 1791

opening the hole to inject the foam mixture. Also, the prior art teaches mixing head (5) is also a mean for containing the foam mixture to mix the foamable ingredients such as water and polyurethane suitable for use in forming the foam. (See lines 70-75, column 2 and lines 1-12, column 3)

Furthermore, Meyers et al. ('282) teach the mixing head (5) is connected to the feed pump (8) as a pressurizing mechanism for injecting the foam mixture into the cavity of the mold (17) through the hole. (See lines 4-17, column 2) Moreover, prior art teaches a carriage (13) for moving the pouring head (5) to a position above the mold (17) to fill the molding cavity with the molding material. (See lines 57-65, column 1)

Meyers et al. ('282) does not teach the mixing head (5) has a rectangular-parallelepiped body; however, it would have been obvious for one of ordinary skill in the art at the time of applicant's invention to change the shape of cylindrical mixing head (5) into a rectangular-parallelepiped shape since such a modification would have involved a mere change in the shape of a component, and a change in shape is generally recognized as being within the level of ordinary skill in the art. *In re Dailey et al.*, 149 USPQ 47

Furthermore, Meyers et al. ('282) fails to teach a mechanism for pushing the molded article out of the metal mold and a second carriage for moving the pushing mechanism from the mold.

In the analogous art, Kresak (US 5,354,194) teach an injection molding machine (11) which include a molded article retrieval device wherein the



Art Unit: 1791

apparatus includes a fixed platen (12) supporting a mold half (13) which cooperates with the mating mold half (14) carried by movable platen (16).

Furthermore, the prior art teaches a product retrieval unit (17) which include a pick-up plate (27) fitted with a plurality of vacuum cups (28) as a mechanism for removing the molded articles from the mold and a carriage (23) for moving the removing mechanism to a position away from the mold.

Furthermore, Kresak ('194) discloses the advantages of providing a mechanism for removing molded articles in which the mechanism is movable with a carriage in order to allow an easy removal of the molded articles without generation of the vibration to prevent product deflection and also providing a synchronization for movement of the pushing mechanism and the open mold. (See lines 21-26, column 2; lines 41-44; lines 41-44; lines 52-54; lines 55-59, column 2)

Therefore, it would have been obvious for one of ordinary skill in the art at the time of applicant's invention to modify teachings of Meyers ('282) by providing a mechanism for pushing the molded article out of the metal mold and also providing a carriage for moving the pushing mechanism away from the mold in order to allow an easy removal of molded articles without vibration generation to prevent product deflection and also providing a synchronization for movement of the pushing mechanism and the open mold, as suggested by Kresak ('194)

With regard to the citations in claim 1, lines 1-2 “a foam mixture composed of particles of aggregate, water-soluble binders, and water”, intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder*, 168 USPQ 530.

The manner or method in which a machine is to be utilized is not germane to the issue of patentability of the machine itself, *In re Casey*, 152 USPQ 235,238.

Purpose to which apparatus is to be put and expression relating apparatus to contents thereof during intended operation are not significant in determining patentability of an apparatus claim, *Ex parte Thibault*, 164 USPQ 666.

A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, *EX parte Masham*, 2 USPQ2d 1647.

Claims 2, 4-5, and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makiguchi (JP 2000-190049) in view of Keating, Jr. et al. (US 5,330,265)

Makiguchi ('049) teaches a molding apparatus in which the molding apparatus includes a sand bath (5), a pipe (9) for pressurizing the molding sand (S) with compressed air, an opening (6) for supplying the molding sand (S) to the sand bath (5), a cover (8), a pipe (10), a rubber plate valve (11), and

Art Unit: 1791

metallic flash molds (2 and 3). (See paragraphs [0005] - [0006] and [0013]), wherein the sand bath (5) includes a hollow rectangular-parallelepiped body with a bottom plate, and further a bottom plate including a hole to inject the molding sand (S). Furthermore, prior art teach the sand bath (5) as a mixing bath is a container for the sand mixture and also a pressurized vessel to inject the foam mixture into the metal mold. Further, Makiguchi ('049) teach the rubber valve function as a mean for closing and opening the pipe (10). (See paragraphs [0005] - [0006] and [0013]; and figure 1). However, Makiguchi ('049) fails to teach measuring sensors as means for measuring temperature and moisture of foam mixture.

In the analogous art, Keating, Jr. et al ('265) teach an apparatus for mixing and cooling molding sand in which the apparatus include a mixer (90), conveyor belts (131 and 132) to carry sand (150), a charge inlet (101), an outlet charge (102), mixer paddles (26), a water input (160), and input probes or sensors (140 and 145) which contact sand (150) when sand deposited on the conveyor (131) wherein sensors (140 and 145) include a temperature sensor as a thermo-sensor and an electrical conductivity sensor as a sensor for measuring an electrical resistance of the foam mixture. Further, Sensors (140 and 145) are measuring means which measure the temperature and moisture content of the molding sand into and exiting from the molding sand mixer and being connected to the inputs of the PLC so that the PLC maintains the

moisture content of the exiting sand. (See abstract; lines 43-68, column 5; and lines 1-14, column 6; figure 6)

Also, Keating, Jr. et al ('265) further disclose means for measuring temperature and moisture of the sand mixture accurately controls the characteristics of the molding sand to such an extent the sand thermodynamically is usable for the molding process. (See lines 17-26, column 1)

Therefore, it would have been obvious for one of ordinary skill in the art at the time of applicant's invention to modify teachings of Makiguchi ('049) by providing sensors as means for measuring foam mixture temperature and moisture in order to control the characteristics of the molding sand to such an extent the sand thermodynamically is usable for the molding process, as suggested by Keating, Jr. et al ('265).

With regard to the citations in claim 2, lines 1-2 "a foam mixture composed of particles of aggregate, water-soluble binders, and water", and claim 4, lines 4-5, "to mix the particles of aggregate, the water-soluble binders, and the water", intended use has been continuously held not to be germane to determining the patentability of the apparatus, *In re Finsterwalder*, 168 USPQ 530.

The manner or method in which a machine is to be utilized is not germane to the issue of patentability of the machine itself, *In re Casey*, 152 USPQ 235,238.

Purpose to which apparatus is to be put and expression relating apparatus to contents thereof during intended operation are not significant in determining patentability of an apparatus claim, *Ex parte Thibault*, 164 USPQ 666.

A recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, *EX parte Masham*, 2 USPQ2d 1647

Claims 3, 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makiguchi (JP 2000-190049) in view of Keating, Jr. et al. (US 5,330,265) as applied to claims 2, 4-5, and 9-10 and further in view of Emery et al. (US 4,448,736)

Combined teachings of Makiguchi ('049) and Keating, Jr. et al. ('265) teach all the structural limitations of an apparatus for molding by pressurizing as discussed above in rejection of claims 2, 4-5, and 9-10, however, fail to teach a means for measuring viscosity of the foam mixture in the batch.

In the analogous art, Emery et al. ('736) teach a continuous in-line melt flow rate control system (40) which is coupled to a mixer/extruder system (10) including a polymer, stabilizer and degradant feeding system (12, 16, 18) supplying mixed materials to the inlet end of an extruder (24) having a die head (26) at the outlet. Further, the apparatus include a control system (40) which is coupled between a rheometer (42) which monitors a slip stream (46) of melt

Art Unit: 1791

from the extruder (24) and a ratio controller (48) in the feeding system (12, 16, 18). The control system (40) includes a rheometer (42) as a sensor which monitors the viscosity of the slip stream of melt from the extruder (24) upstream from the die head (26) and converts the monitored viscosity value to a process signal (F) and a controller (44) that compares the process signal (F) with a set point value (A) related to a target melt flow rate and generates a correction signal when there is a difference between the process signal (F) and the set point value (A). (See abstract)

Furthermore, Emery et al. ('736) disclose the viscosity is measured by monitoring the viscosity of a slip stream of polypropylene mixture melt from an extruder upstream of an extruder die head with a rheometer having a positive pressure displacement pump; sensing a difference in the rheometer pump speed from the pump speed required to maintain a desired rate of flow of polymer at constant temperature and pressure through an orifice. (See lines 29-35, column 4)

Also, Emery et al. ('736) teach the advantages of monitoring the viscosity of mixing polymer melt in order to control the polymer flow rate so as to maintain a substantially constant polymer molecular weight. (See lines 9-19, column 1)

Therefore, it would have been obvious for one of ordinary skill in the art at the time of applicants' invention to modify combined teachings of Makiguchi ('049) and Keating, Jr. et al. ('265) by providing a means for measuring the

viscosity of the foam mixture in the batch in order to control the polymer flow rate so as to maintain a substantially constant polymer molecular weight, As suggested by Emery et al. ('736)

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Masoud Malekzadeh whose telephone number is 571-272-6215. The examiner can normally be reached on Monday – Friday at 8:30 am – 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin, can be reached on (571) 272-1189. The fax number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see

Art Unit: 1791

<http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. M. M./

Examiner, Art Unit 1791

/Steven P. Griffin/

Supervisory Patent Examiner, Art Unit 1791